U.S. Department of Transportation
Federal Highway Administration

Memorandum

Subject: **ACTION:** Load Rating for the FAST Act's Emergency Vehicles

Date: November 3, 2016

From: /Original signed by/
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In Reply Refer To: HIBS-1

To: Division Administrators
Federal Lands Highway Division Directors

On December 4, 2015, the President signed into law the *Fixing America's Surface Transportation Act* (FAST Act) (Pub. L.114-94). Section 1410 of the FAST Act amended 23 U.S.C. 127, *Vehicle weight limitations—Interstate System*, by revising the weight limits for certain vehicles on the Interstate System. The purpose of this memorandum is to provide guidance on maintaining compliance with the load rating and posting requirements of 23 CFR Part 650—specifically for the amended weight limits in 23 U.S.C. 127(r), *Emergency Vehicles*, for bridges on the Interstate System and within reasonable access to the Interstate System. Reasonable access is defined in a September 30, 1992 Non-Regulatory Supplement to 23 CFR Part 658 as at least one-road-mile from access to and from the National Network of highways, which includes the Interstate System, or further if the limits of a State's reasonable access policy for food, fuel, repairs, and rest extend to facilities beyond one-road-mile.

An emergency vehicle as defined in the FAST Act is designed to be used under emergency conditions to transport personnel and equipment to support the suppression of fires and mitigation of other hazardous situations (23 U.S.C. 127(r)(2)). The gross vehicle weight limit for emergency vehicles is 86,000 pounds under section 127(r). The statute imposes the following additional limits, depending upon vehicle configuration:

- 24,000 pounds on a single steering axle
- 33,500 pounds on a single drive axle
- 62,000 pounds on a tandem axle
- 52,000 pounds on a tandem rear drive steer axle

Emergency vehicles are typically operated by fire departments and are primarily equipped for firefighting, but are also used to respond to and mitigate other hazardous situations in

an emergency. These vehicles may not meet Federal Bridge Formula B. They can create higher load effects compared to the AASHTO legal loads (i.e., Types 3, 3S2, 3-3, and SU4 to SU7) which are currently included in the AASHTO Manual for Bridge Evaluation (MBE). The Federal Highway Administration (FHWA) has determined that, for the purpose of load rating, two emergency vehicle configurations produce load effects in typical bridges that envelop the effects resulting from the family of typical emergency vehicles that is covered by the FAST Act:

1. Type EV2 - for single rear axle emergency vehicles

   Front Single Axle: 24,000 pounds
   Rear Single Axle: 33,500 pounds
   Wheelbase: 15 ft.

2. Type EV3 – for tandem rear axle emergency vehicles

   Front Single Axle: 24,000 pounds
   Rear Tandem Axle: 62,000 pounds (two 31,000 pound axles spaced at 4 ft.)
   Wheelbase: 17 ft. (distance from front axle to the centerline of rear tandem axle)

Load ratings (or rating factors) should be determined for these emergency vehicle configurations i.e., Types EV2 and EV3, at the operating or legal load rating level in accordance with the methods specified in the AASHTO MBE, First Edition with two exceptions:

1. Multiple presence: If necessary, when combined with other unrestricted legal loads for rating purposes, the emergency vehicle needs only to be considered in a single lane of one direction of a bridge.

2. Live load factor: A live load factor of 1.3 may be utilized in the Load and Resistance Factor Rating (LRFR) or Load Factor Rating (LFR) method.

Under 23 CFR 650.313(c), all highway bridges must be load rated and, if necessary, posted in accordance with the MBE. Recognizing that States and Federal agencies cannot immediately load rate every Interstate System bridge and bridges within reasonable access to the Interstate, FHWA recommends utilizing the following approach to prioritize load rating and posting for emergency vehicles:

Group 1: Bridges that meet any one of the following criteria do not need to be immediately load rated for emergency vehicles.

a. An operating or legal load rating factor for the AASHTO Type 3 vehicle of at least 1.85;

b. an inventory rating factor for the HS 20 design load of at least 1.0 using the LFR method, or

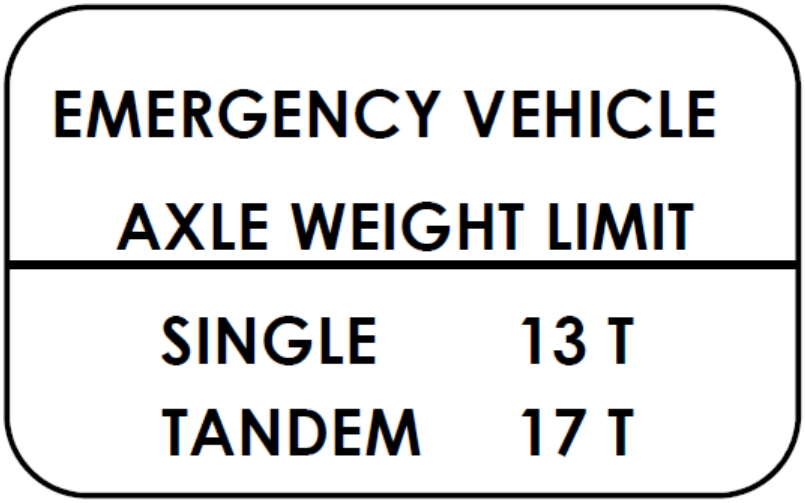
c. an inventory rating factor for the HL-93 design load of at least 0.9 using the LRFR method.

However, the bridges in this group shall be rated for the emergency vehicles when a normal re-rating is warranted, including changes in structural condition and other loadings.

Group 2: Bridges not in Group 1 should be rated for the emergency vehicles following their next inspection to incorporate the latest condition of the bridge, but no later than December 31, 2019. Emergency vehicles should be included in any new load ratings for these bridges when the load ratings occur before December 31, 2019.

If a State or Federal agency wants to utilize an alternative approach in lieu of the above to group bridges in an inventory for the purpose of prioritization, it should seek FHWA's review and concurrence of the alternative approach. Regardless of the prioritization approach used, the selection of load rating method should comply with FHWA's Policy Memorandum *Bridge Load Ratings for the National Bridge Inventory, dated October 30, 2006*.

When a load rating results in an operating rating factor less than 1.0 for the emergency vehicles, the bridge shall be appropriately posted for both the governing single axle weight limit and tandem axle weight limit derived from the above emergency vehicle configurations, i.e., Types EV2 and EV3 (23 CFR 650.313(c)). When posting is necessary, the following sign format, using the appropriate weight limits, should be considered:



If a State law allows or exempts emergency vehicles to operate without restriction off the Interstate System as legal loads, 23 CFR 650.313(c) requires bridges on these highways to be load rated and posted, if necessary, for these vehicles. Unless State law relies on a different definition of emergency vehicle than that included in the FAST Act (23 U.S.C. 127(r)(2)), States can perform load ratings on these highways using the two emergency vehicle configurations included in this memorandum.

Division Offices should work with their State DOT or Federal agency partners to develop

an action plan by March 31, 2017, with defined tasks, completion dates, and progress reporting requirements. Although this guidance focuses on highway bridges, 23 CFR 650.513(g) also requires States and Federal agencies to load rate and post highway tunnels, if necessary. Therefore, the action plan should also incorporate highway tunnels. States and Federal agencies should load rate tunnels for the emergency vehicle configurations above by December 31, 2019. Each Division Office should coordinate this action plan with its Bridge Safety Engineer.

We request that you share this memorandum with your State DOT or Federal agency partners immediately. If you have any questions or need more information, please contact Lubin Gao at (202)366-4604 or Lubin.Gao@dot.gov , or your Bridge Safety Engineer.

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